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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/508,969

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Tomoyuki Nakano

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08/15/2006

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EXAMINER

CORDRAY, DENNIS R

ART UNIT

PAPER NUMBER

1731

DATE MAILED: 08/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/508,969

Applicant(s)

NAKANO ET AL.

Examiner

Dennis Cordray

Art Unit

1731

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 06 July 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1, 3-5 and 7-14 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Winiker (5032226) as evidenced by Alfrey, Jr. et al ("Amphoteric Polyelectrolytes. II. Copolymers of Methacrylic Acid and Diethylaminoethyl Methacrylate" J. Am. Chem. Soc., V. 74 (1952) pp 438-441) and Alfrey, Jr. et al ("Preparation and Titration of Amphoteric Polyelectrolytes" J. Polymer Sci., V 23 (1957) pp 533-547).

Winiker discloses a base paper for photographic layer support comprising an amphoteric poly(meth)acrylamide copolymer (Abstract; col 3, lines 59-65). The copolymer, which has a molecular weight in the area of 100,000 to 2,000,000, comprises anionic monomers, cationic monomers, and acrylamide or methacrylamide monomers. A molecular weight in the area of 2,000,000 could include molecular

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weights above 2,000,000. The molar ratio of acrylamide to cationic and anionic monomers is from 60:40 to 95:5 and the ratio of cationic to anionic groups is from 10:1 to 1:2, and. The copolymer is added to the paper pulp suspension in an amount from 0.3 - 3% by weight of the fibers (col 3, line 67 to col 4, line 17 and col 4: lines 38-41; col 6, lines 8-22). Anionic groups include carboxyl or alkalicarboxylate groups. Cationic groups include quaternary or protonized dialkyl aminoalkylkylene (meth)acrylate and dialkyl aminoalkylene (meth)acrylamide. The protonized forms are preferably sulfuric or hydrochloric acid salts. Quaternization can be achieved by dimethyl sulfate or methyl chloride (col 5, lines 43-68). A sizing agent used in the paper can be an epoxidized fatty acid amide (a fatty acid polyamide compound) (col 5, lines 3-6). Although Winiker discloses the sizing agent for providing hydrophobic properties, it can simultaneously function as a bulking agent, thus producing a bulky paper. A wet strength resin is disclosed, thus the fibers can be crosslinked (bridged) (col 5, lines 31-42). The composition of the paper Winiker significantly overlaps that of the claimed paper. The paper can be printed on or made into a printing paper.

Winiker does not disclose the electric charge or potential of the copolymer as a function of pH.

Alfrey, Jr. et al (J. Am. Chem. Soc.) teaches that amphoteric copolymers of methacrylic acid and dimethylaminoethyl methacrylate exist as polycations (positive potential) at low pH and as polyanions (negative potential) at high pH, where the crossover point from cationic to anionic behavior, the isoelectric point, occurs at an intermediate pH (Abstract). Alfrey, Jr. et al (J. Polymer Sci.) discloses titrations of

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several copolymers of containing from 27 to 88 mole percent of dialkylaminoethyl (meth)acrylate with the remainder being (meth)acrylic acid (pp 534, 536 and 537). At a pH of 2, the electric charge for the titrated copolymers ranged from 2 to between 5 and 6 meq/gm and at a pH of 12, the electric charge ranged from 1 to 6 meq/gm.

The anionic and cationic monomers disclosed by Alfrey, Jr. et al are included in the list of suitable monomers of the instant invention as well as in the paper of Winiker. The composition. tested by Alfrey, Jr. et al fall within the cationic to anionic monomer ratio disclosed by Winiker. If the copolymers disclosed by Alfrey, Jr. et al were diluted to contain 60 to 95% (meth)acrylamide monomers, the electric charge would be reduced to less than 2 meq/gm at pH values of 2 and 12. Thus the amphoteric polyacrylamide of Winiker would inherently possess, or it would have been obvious to one of ordinary skill in the art to obtain, the claimed electric charge at a pH of 2 and 12.

The paper of Winiker is capable of having a relative bonding area of less than or equal to 1.2 times the relative bonding area of tissues not containing the polyacrylamide because, where the claimed and prior art apparatus or product are identical or substantially identical in structure or composition, a *prima facie* case of either anticipation or obviousness has been established. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). In other words, when the structure recited in the reference is substantially identical to that of the claims, the claimed properties or functions are presumed to be inherent.

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Claims 2 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Winiker as applied to claims 1, 3-5 and 7-14 above in view of Tashiro et al (4935097) and Schade et al (2002/0182379).

Winiker does not disclose addition of amorphous silicate to the paper.

Tashiro et al teaches that paper for a photographic support requires rigidity and that it is known to enhance the rigidity of paper by making it bulky (col 1, lines 9-27). Tashiro also discloses that a paper with enhanced rigidity can be made into a printing paper (col 2, lines 63-66). Schade et al teaches that printing base paper requires high bulk for good ink penetration (p 2, par 26). Thus, it is known in the art to use a bulky paper for both photographic support paper and for printing paper.

Various methods used in prior art for enhancing the bulk of paper are taught in the Background section of the instant Disclosure (p 1, lines 15-26), including adding an amorphous silicate having a density of 0.3 g/ml or less, using mercerized fibers and adding bulking agents.

The art of Winiker, Tashiro et al, Schade et al and the instant invention are analogous as pertaining to bulky paper. It would have been obvious to one of ordinary skill in the art to enhance the bulk of the paper of Winiker in view of Tashiro et al and Schade et al to make it more rigid or to improve the ink penetration during printing. It would also have been obvious to use any of the prior art methods for enhancing the bulk of the paper.

***Response to Arguments***

Applicant's amendments filed 7/6/2006 have overcome the previous rejections of claim(s) 1-8 under 35 U.S.C. 102(b). Therefore, the rejections have been withdrawn. However, upon further consideration, a new ground(s) of rejection is made as detailed above.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis Cordray whose telephone number is 571-272-8244. The examiner can normally be reached on M - F, 7:30 -4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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